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No. 8—1904.

INTERIM REPORT

ISSUED BY

British Engineering Standards Association.

(*Incorporated* 1918.)

FORMED IN 1901 AS THE ENGINEERING STANDARDS COMMITTEE

BY

THE INSTITUTION OF CIVIL ENGINEERS.
THE INSTITUTION OF MECHANICAL ENGINEERS.
THE INSTITUTION OF NAVAL ARCHITECTS.
THE IRON AND STEEL INSTITUTE.
THE INSTITUTION OF ELECTRICAL ENGINEERS.

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BRITISH

STANDARD SPECIFICATION

FOR

TUBULAR TRAMWAY POLES.

LONDON
PUBLISHED FOR THE ASSOCIATION BY CROSBY LOCKWOOD & SON,
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January, 1919.

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†Succeeded the late SIR JOHN WOLFE BARRY, K.C.B., February, 1918.

BRITISH ENGINEERING STANDARDS ASSOCIATION.

The following is a list of the Members of the Sub-Committee by whom the Standard Specification for Tubular Tramway Poles has been drawn up.

SUB-COMMITTEE ON ELECTRIC TRAMWAYS.

August, 1904.

Mr. A. P. Trotter (*Chairman*), Mr. Philip Dawson, Mr. F. Forbes Higginson, Mr. E. R. Hill, Mr. J. H. Rider, Mr. W. Rutherford, Mr. H. M. Sayers, Mr. R. H. Scotter, Mr. A. M. Sillar, Mr. J. J. Steinitz, Mr. A. H. Walton.

PREFACE.

The Sub-Committee on Electric Tramways, under the Chairmanship of Mr. A. P. Trotter, the Electrical Adviser to the Board of Trade, was appointed at a Meeting of the Electric Plant Committee on May 28th, 1903.

This Report was confirmed by the Main Committee at their Meeting on July 26th, 1904.

The question of standardising Tramway Poles, upon which problem the Sub-Committee have been engaged, has been somewhat more complex than was at first anticipated.

At the commencement of their labours the Committee, through the courtesy of the Manufacturers, obtained figures indicating the general trend of every day practice with regard to outside diameters, overall lengths of Poles and test conditions.

These figures were very carefully considered by the Sub-Committee and a Circular was drafted, in which the views of the Members and those of the Makers were as far as possible combined. This Circular was issued to a number of the leading Tramway Engineers in the kingdom, resulting in a large majority signifying their adherence to the proposals put forward by the Sub-Committee.

Having now the views of both Users and Makers before them, the Sub-Committee proceeded to draft a Standard Specification for Tramway Poles. Before, however, finally adopting it, it was thought advisable that the Manufacturers should have a final opportunity of putting forward any suggestions or amendments which they might desire to make. With this object in view the proposed Standard Specification was forwarded to the Makers, but the replies which were received not being entirely in accord with the proposals, a Conference (which was attended by the leading Polemakers) was convened at the Institution of Civil Engineers last June.

The different questions affecting the standardisation of Tramway Poles were very thoroughly discussed and the Specification was modified in accordance with the views expressed at the Conference.

A Standard Specification for Tubular Tramway Poles having now been arrived at as the result of the joint labours of the Committee and the Makers, it is hoped that, in future, the Standards recommended by the Committee will be universally adopted by all Engineers engaged in designing and installing Electrical Tramways throughout the British Empire.

NOTE.—*The Association desires to call attention to the fact that this Specification is intended to include the technical provisions necessary for the supply of the article herein referred to, but does not purport to include all the necessary provisions of a Contract.*

BRITISH

STANDARD SPECIFICATION

FOR

TUBULAR TRAMWAY POLES.

Classes.

1. The Poles shall be of mild steel free of all defects and shall be of three classes.

Light Pole.
Medium Pole.
Heavy Pole.

Construction.

2. The Sectional Poles shall be either solid drawn, or lap welded wrought steel, free of all defects, made up in three sections, swaged together when hot so as to make a perfect joint. The lap-welded seams in the sections shall be set at an angle of one hundred and twenty degrees (120°) to each other.

The Taper Poles shall be of wrought steel, free of all defects, rolled in one length and butt welded the entire length. The butt welding shall be carried out at an even temperature without overheating and no Pole shall show any signs of burning at the weld.

Overall Length.

3. The overall length of Poles of all classes shall be thirty-one feet (31 ft.).

Length of Joints.

4. The length of the telescope joint in the Sectional Poles shall be eighteen inches (18 ins.).

Length of Sections.

5. The length of the sections shall be :—

Top section	8 feet 6 inches.
Middle section	8 feet 6 inches.
Bottom section	17 feet.

Outside Diameters.

6. The outside diameters, in inches, of the three classes of both Sectional and Taper Poles, shall be:—

SECTIONAL POLES.

Class.	Top.	Middle.	Bottom.
Light	5½ ins.	6½ ins.	7½ ins.
Medium ...	6½ ins.	7½ ins.	8½ ins
Heavy	7½ ins.	8½ ins.	9½ ins.

TAPER POLES.

Class.	Top.	Outside diameter 9 feet 6 inches from Base.
Light	4¾ ins.	7½ ins.
Medium	5¾ ins.	8½ ins.
Heavy	6¾ ins.	9½ ins.

Minimum Thickness.

7. The thickness of metal in any Pole shall not be less than one-quarter of an inch ($\frac{1}{4}$ in.).

Straightness.

8. The completed Poles shall be straight and true over their entire length to within one-quarter of an inch ($\frac{1}{4}$ in.).

Variation in Diameter.

9. The section of any Pole shall be as nearly circular as possible, not varying in diameter by more than one-sixteenth of an inch ($\frac{1}{16}$ in.) from the adopted standard.

Drop Test.

10. Five per cent. (5%) of each class of Sectional Pole shall be subjected to the following drop test:—

The Pole shall be dropped vertically, butt downwards, three times in succession, from a height of six feet on to a hard wood block six inches thick laid on a concrete foundation, without showing any signs of telescoping or loosening of joints.

Bending Tests.

11. Five per cent. (5 %) of each class of both Sectional and Taper Pole shall be subjected to the following bending tests :—

The Pole shall, in each case, be rigidly supported for six feet from the butt, and loaded, as a cantilever, eighteen inches (18 ins.) from the top, the load being applied at right angles to the axis of the Pole which shall be fixed horizontally. Upon the application of the following loads in lbs., the temporary deflection and permanent set, measured at the point of application of the load, shall not exceed the figures stated in the tables.

Class of Pole.	Load in lbs. for temporary deflection not exceeding 6 ins.	Load in lbs. for permanent set not exceeding ½ in.
Light	750 lbs.	1,000 lbs.
Medium	1,250 lbs.	1,750 lbs.
Heavy	2,000 lbs.	2,500 lbs.

Rejection.

12. In the event of any Pole of the above-mentioned five per cent. (5 %) not fulfilling the test requirements, a further five per cent. (5 %) shall be subjected to the tests enumerated above. Should any further failure occur, the whole parcel from which the Poles have been selected shall be liable to rejection.

Provision of Testing Apparatus.

13. The maker at his own expense, and to the satisfaction of the Engineer, shall provide all the necessary testing apparatus at his own Works for carrying out the above-mentioned tests.

British Engineering Standards Association.

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OF

BRITISH STANDARD SPECIFICATIONS AND REPORTS.

NOVEMBER, 1919.

(This List cancels all previous Lists.)

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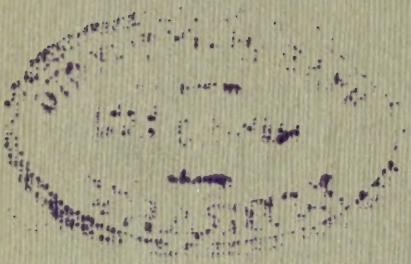
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